a check valve disposed in the second flow path through the first flow control valve, the check valve allowing the flow of fluid through the second flow path through the first flow control valve in a first direction and preventing the flow of fluid through the second flow path through the first flow control valve in a second direction;

a second flow control valve having first and second orifices interconnected by first and second parallel flow paths and being connected in series with the first flow control valve, the first orifice of the second flow control valve connected to the second end of the second conduit so as to allow the first and second flow paths through the second flow control valve to communicate with the second portion of the cavity through the second conduit, and the second orifice of the second flow control valve communicating with the first orifice of the first flow control valve, the second flow control valve including:

a flow regulator having a plurality of user selectable settings and being movable into the first flow path through the second flow control valve, the flow regulator controlling the rate at which the fluid flows through the first flow path; and

a check valve disposed in the second flow path through the second flow control valve, the check valve allowing the flow of fluid through the second flow path through the second flow control valve in the second direction and preventing the flow of fluid through the first flow path through the second control valve in the first direction.

REMARKS

The Examiner has rejected all of the pending claims under 35 U.S.C. § 102(b) as being anticipated by British Publication No. 1,257,827. Applicant has amended the pending claims in order to more particularly define the invention for which protection is sought. As such, reconsideration of the Examiner's rejections is respectfully requested in view of the following comments.

Claim 22 defines a dampening cylinder having a cylindrical housing, a piston slidably

extending through a cavity in the housing and a flange projecting from the piston so as to divide the cavity in the housing into first and second portions. A flow conduit has a first end communicating with the first portion of the cavity and a second end communicating with the second portion of the cavity. The flow conduit includes first and second control valves for controlling the flow of fluid between first and second portions of the cavity. Each flow control valve includes a flow regulator having a plurality of user selectable discrete settings for controlling the rate at which the fluid flows through a corresponding flow control valve. As hereinafter described, nothing in the cited references shows or suggests providing flow regulators in the flow control valves to control the rate at which fluid flows therethrough.

The British '827 specification discloses a device for balancing the forces inertia of reciprocating stands of cold rolling mills. As best seen in Figures 2 and 3, an air cylinder is provided having a piston slidably received therein which defines first and second working spaces in the air cylinder. The air spaces are interconnected by a conduit that includes first and second maximum pressure valves. It is intended that the pressure in each working space be equal. If movement of the piston disturbs the equality, one of the maximum pressure valves opens and the excess air is transferred from one working space to the other.

It can be appreciated that the structure disclosed in the British '827 specification provides no mechanism for controlling the rate of air flow through the conduit interconnecting the first and second working spaces. Consequently, in such circumstances wherein controlled movement of the piston is required, the structure disclosed in the British '827 specification is inadequate. For example, if a large force is placed on one end of the piston that urges the piston to slide through a cylinder at one rate, it may be highly desirable when the force is removed to have the piston to return to its original position, at a second, slower rate. This operation can be significant in certain applications where the cylinder controls movement of an object like the transfer deck described in the specification of the present application. For example, when heavy articles are positioned on the transfer deck, it is imperative the deck travel at such a speed as to not injure the

operator thereof. Similarly, when the articles are subsequently removed from the transfer deck, it is imperative that the deck return to its original position at such a speed as to not injure the operator thereof. By providing flow regulators, an operator has the ability to control the speed of at which the piston slides through the cylinder, thereby overcoming the disadvantages associated with the structure disclosed in the cited reference. In view of the foregoing, it is believed that independent claim 22 defines over the cited reference and passage to allowance is respectfully requested.

Claims 23-29 depend either directly or indirectly from independent claim 21 and further define a dampening cylinder not shown or suggested in the prior art. It is believed that claims 23-29 are allowable as depending from an allowable base claim and in view of the subject matter of each claim.

Claim 30 defines a dampening cylinder incorporating a cylindrical housing and a piston slidable through the housing. A control valve structure is provided to control the flow of fluid between first and second portions of a cavity in the housing. The control valve structure includes a control valve with a flow regulator having a plurality of user selectable settings. The flow regulator controls the rate of which fluid flows through the first flow control valve. The flow control valve structure also includes a second control valve with a flow regulator having a plurality of user selectable settings. The flow regulator of the second control valve controls the rate of at which the fluid flows through the second control valve.

As heretofore described with respect to claim 22, the British '827 specification does not suggest providing control valves having flow regulators with user selectable settings which control the flow rate of the fluid through the control valves. Such a structure is entirely absent from the cited reference. As such, it is believed that independent claim 30 defines over the cited reference and is in proper form allowance.

Claims 32, 34-35 and 37 depend either directly or indirectly from independent claim 30 and further define a dampening cylinder not shown or suggested in the prior art. It is believed that such claims are allowable as depending from an allowable base claim and in view of the subject matter of each claim.

Similar to claim 30, claim 38 defines a dampening cylinder having first and second control valves. Each control valve includes a flow regulator having a plurality of user selectable settings. The settings of the flow regulators control the rates at which the fluid flows through the corresponding flow control valves. As described with respect to independent claims 22 and 30, such a structure is not shown or suggested in the cited reference. As such, it is believed that independent claim 38 defines over the cited reference and passage to allowance is respectfully requested.

Claim 39 depends directly from independent claim 38 and further defines a dampening cylinder not shown or suggested in the prior art. It is believed that claim 39 is allowable as depending from an allowable base claim and in view of the subject matter of the claim.

Applicant believes that the present application with claims 22-30, 32, 34-35, and 37-39 is in proper form for allowance and such action is earnestly solicited.

The Applicant believes there are no fees associated with this transmission. However, the Commissioner is hereby authorized to charge payment of any fee associated with this or any other communication or credit any overpayment to Deposit Account No. 50-1170.

Respectfully submitted,

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Dated: 4/16/02

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APPENDIX SHOWING THE CHANGES FOR SERIAL NO. 09/769,590

IN THE CLAIMS:

Please amend the claims as follows:

22. (Amended) A dampening cylinder, comprising:

a cylindrical housing having first and second ends and an inner surface defining a cavity in the housing for receiving a fluid therein;

a piston slidably extending through the cavity in the housing;

a flange projecting from the piston and positioned within the cavity so as to divide the cavity in the housing into first and second portions, the flange terminating at a radially outer edge which forms a slidable interface with the inner surface of the housing; and

a flow conduit having a first end communicating with the first portion of the cavity in the housing and a second end communicating with the second portion of the cavity in the housing, the flow conduit including:

a first and second flow control valves for controlling the flow of fluid between the first and second portions of the cavity in the housing, each flow control valve including a flow regulator having a plurality of user selectable discrete settings for controlling the rate at which the fluid flows through a corresponding flow control valve.

24. (Amended) The dampening cylinder of claim 23 wherein the [first flow control valve includes a] flow regulator of the first flow control valve is movable between a first retracted position wherein the flow regulator of the first flow control valve is removed from the first flow path and a second extended position wherein the flow regulator of the first flow control valve extends into the first flow path.

28. (Amended) The dampening cylinder of claim 26 wherein the [second flow control valve includes a] flow regulator of the second flow control valve is movable between a first retracted position wherein the flow regulator of the second flow control valve is removed from the first flow path of the second flow control valve and a second extended position wherein the flow regulator of the second flow control valve extends into the first flow path of the second flow control valve.

30. (Amended) A dampening cylinder, comprising:

a cylindrical housing having first and second ends and an inner surface defining a cavity in the housing for receiving a fluid therein;

a piston slidably extending through the cavity in the housing;

a flange projecting from the piston and positioned within the cavity so as to divide the cavity in the housing into first and second portions, the flange terminating at a radially outer edge which forms a slidable interface with the inner surface of the housing;

a first conduit having a first end communicating with the first portion of the cavity in the housing and a second end;

a second conduit having a first end communicating with the second portion of the cavity in the housing and a second end; and

a control valve structure disposed between the first and second conduits for controlling the flow of fluid between the first and second portions of the cavity in the housing, the control valve structure includes first and second flow control valves in series between the first and second conduits;

wherein the first flow control valve includes a flow regulator having a plurality of user selectable settings and being movable into the first flow path, the flow regulator controlling the rate at which the fluid flows through the first flow path; and

wherein the second flow control valve includes a flow regulator having a plurality of user selectable settings and being movable into the first flow path of the second flow control valve, the flow regulator controlling the rate at which the fluid flows through the first flow path.

Cancel claim 31.

32. (Amended) The dampening cylinder of claim [31] 30 wherein the first flow valve includes first and second orifices interconnected by first and second parallel flow paths, the first orifice communicating with the first portion of the cavity through the first conduit.

Cancel claim 33.

34. (Amended) The dampening cylinder of claim [33] 32 wherein the first flow control valve includes a check valve disposed in the second flow path, the check valve allowing the flow of fluid through the second flow path in a first direction and preventing the flow of fluid through the second flow path in a second direction.

Cancel claim 36.

37. (Amended) The dampening cylinder of claim [36] 35 wherein the second flow control valve includes a check valve disposed in the second flow path of the second flow control valve, the check valve of the second flow control valve allowing the flow of fluid through the second flow path of the second flow control valve in the second direction and preventing the flow of fluid through the second flow path of the second flow control valve in the first direction.

38. (Amended) A dampening cylinder, comprising:

a cylindrical housing having first and second ends and an inner surface defining a cavity in the housing for receiving a fluid therein;

a piston slidably extending through the cavity in the housing;

a flange projecting from the piston and positioned within the cavity so as to divide the cavity in the housing into first and second portions, the flange terminating at a radially outer edge

which forms a slidable interface with the inner surface of the housing;

a first conduit having a first end communicating with the first portion of the cavity in the housing a second end;

a second conduit having a first end communicating with the second portion of the cavity in the housing and a second end;

a first flow control valve having first and second orifices interconnected by first and second parallel flow paths, the first orifice connected to the second end of the first conduit so as to allow the first and second flow paths through the first flow control valve to communicate with the first portion of the cavity through the first conduit, the first flow control valve including:

a flow regulator having a plurality of user selectable settings and being movable [between a first retracted position wherein the flow regulator is removed from the first flow path through the first flow control valve and a second extended position wherein the flow regulator extends] into the first flow path through the first flow control valve, the flow regulator controlling the rate at which the fluid flows through the first flow path; and

a check valve disposed in the second flow path through the first flow control valve, the check valve allowing the flow of fluid through the second flow path through the first flow control valve in a first direction and preventing the flow of fluid through the second flow path through the first flow control valve in a second direction;

a second flow control valve having first and second orifices interconnected by first and second parallel flow paths and being connected in series with the first flow control valve, the first orifice of the second flow control valve connected to the second end of the second conduit so as to allow the first and second flow paths through the second flow control valve to communicate with the second portion of the cavity through the second conduit, and the second orifice of the second flow control valve communicating with the first orifice of the first flow control valve, the second flow control valve including:

a flow regulator having a plurality of user selectable settings and being movable [between a first retracted position wherein the flow regulator of the second flow control valve is removed from the first flow path through the first second control valve and a second

extended position wherein the flow regulator of the second flow control valve extends] into the first flow path through the second flow control valve, the flow regulator controlling the rate at which the fluid flows through the first flow path; and

a check valve disposed in the second flow path through the second flow control valve, the check valve allowing the flow of fluid through the second flow path through the second flow control valve in the second direction and preventing the flow of fluid through the first flow path through the second control valve in the first direction.